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at Dresden, found them to consist of fine rock-powder, in which he identified fragments of *quartz* as the most prominent constituent, besides feldspar, plagioclase, green hornblende in considerable quantity, mica (mostly biotite), a trifling amount of magnetite, numerous dendritic or, sometimes, kidney-shaped grains of an ochre-like mineral, and fine particles of *clay* and *limestone*. Such a composition (says he) indicates certainly that this loess leads its origin substantially from disintegrated primitive rocks (gneiss or granite) and diorite.

The dust on the inland ice of Greenland offers a suitable soil for quite a number of small algæ. Professor V. B. Wittrock examined some of the samples of kryokonite, and the results of his investigations are embodied in his paper, "Om snöns och isens flora."<sup>1</sup>

(To be concluded.)

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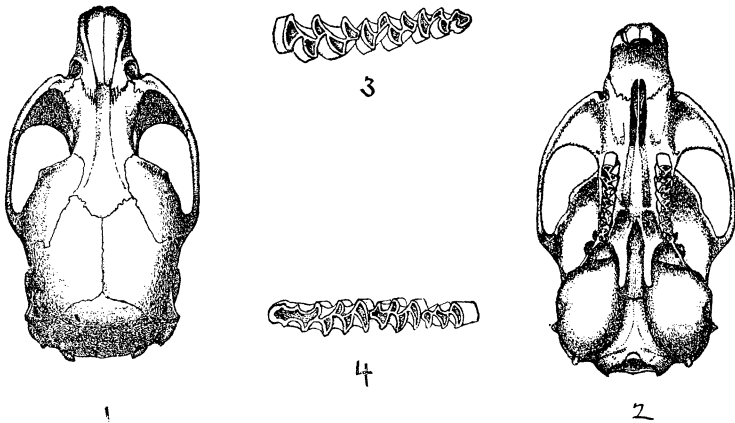
## DESCRIPTION OF A NEW PRAIRIE MEADOW MOUSE (*ARVICOLA AUSTERUS MINOR*) FROM DAKOTA AND MINNESOTA.

BY DR. C. HART MERRIAM.

A LARGE series of meadow mice of the genus *Arvicola*, collected during the past two years in Minnesota and eastern Dakota, comprises but two species, which, in the field notes of the collector, Mr. Vernon Bailey, are designated respectively as "upland" and "lowland" meadow mice. The "upland" form is never found on the marshes, but the "lowland," which is most abundant in wet meadow lands and in the neighborhood of streams, sometimes occurs on the dry prairies in company with the other. Externally, some of these mice resemble one another so closely that sharp discrimination is necessary for their separation. A glance at their teeth, however, shows that they belong to different sub-genera. The "lowland" species has two external closed triangles on its last upper molar, a postero-internal loop or "spur" on its middle upper

<sup>1</sup> A. E. Nordenskiöld: Studier och forskningar, föranledda af mina resor i höga norden. Stockholm, 1883, pages 63-124.

molar, and three internal and at least two external closed triangles on its front lower molar—and consequently is a *Myonomes*, closely related to our common eastern meadow mouse, *Arvicola (Myonomes) riparius*. The “upland” species has but one external closed triangle on the back upper molar, lacks the “spur” of the preceding tooth, and has but two internal and one external closed triangles on the front lower molar—in other words is a *Pedomys*, nearly related to the prairie meadow mouse of the Mississippi Valley, *Arvicola (Pedomys) austerus*. For purposes of critical comparison, therefore, the remaining sub-genera of *Arvicola* may be summarily dismissed. The sub-genus *Pedomys*, according to Coues, the latest monographer of the group, contains but the single species, *austerus*. He also placed in this sub-genus, and in fact as only sub-specifically separable from *austerus*, a very different mouse (namely, his *Arvicola austerus curtatus*) which is not a *Pedomys* at all, but, as I have recently shown, belongs to the sub-genus *Chilotus*. This leaves *austerus* as the only species with which Mr. Bailey’s “upland” mouse may be compared. The principal difference is in size, the new form being a miniature of *austerus*. The case has a parallel among birds, in the hairy and downy woodpeckers (*Picus villosus* and *P. pubescens*),



2245 male *Arvicola (Pedomys) minor* Merriam. 1 and 2, skull from about and below  $\times 2$ ; 3, upper molar series,  $\times 5$ ; 4, lower molar series,  $\times 5$ .

except that in the case of the mice the ranges of the two are not known to overlap. In my series of considerably more than a hundred specimens of *austerus* proper I do not find a single adult indi-

vidual as small as the largest of about thirty specimens of the northern animal. The average difference in length, without the tail, is nearly 25 mm. (about an inch). In typical *austerus*, the hind foot averages 19 to 20 mm., while in the new form it averages but 16 to 17 mm. In adult skulls of *austerus* the average basilar-length falls between 24 and 25 mm.; in the northern form it falls between 20 and 21 mm. In reference to its diminutive size, I have named the northern mouse

ARVICOLA AUSTERUS MINOR, sub-sp. nov.

Northern Prairie Meadow Mouse.

Type  $\frac{3827}{4406}$ , male, Merriam Collection. From Bottineau, Turtle Mt., Dakota, August 27, 1887.

*Description of Type*.—Similar to *Arvicola austerus*, but much smaller; length from end of nose to tip of tail vertebræ (measured in the flesh), 133 mm.; tail vertebræ, 36 mm.; hind foot, 16.5 mm.; ears rather prominent, slightly overtopping the fur.

*Color*.—Upper parts uniform grizzled gray; under parts whitish, washed with pale cinnamon. Viewed from behind, looking away from the light, the entire head, back and sides appear to be finely and closely lined with silvery. The fur of the belly is plumbeous basally and nearly white apically. There is no sharp line of demarkation between the color of the sides and that of the belly. Tail bicolor, the light color of the under surface reaching well up on the sides.

*Description of other Specimens*.—The type, which is from Turtle Mt., Dakota, is very closely matched by specimens from several places in the Red River Valley (particularly from Travare, Dakota, and Ortonville, Minnesota); and by a few of the Elk River specimens. A male from Elk River (No.  $\frac{2491}{3001}$ ), collected June 2, 1886, is almost a duplicate of the type, except that the belly is darker—it is more sparsely haired, and the plumbeous basal portion of the fur shows through. Other specimens from Elk River have the upper parts strongly suffused with brown, and the belly strongly washed with cinnamon.

In others there is as much whitish on the belly as in the type; while in others still the under parts are of the "muddy rust color" so often seen in true *austerus*. This is pronounced in No.  $\frac{4184}{4723}$ ,

male, from Elk River. The variations in color of under parts do not seem to depend on age, sex, or season, though of course the fur is everywhere longer and more dense in winter than in summer, as is the case in all northern *Arvicolæ*.

*General Remarks.*—*Arvicola minor* is so different from all American *Arvicolæ* except *austerus* that comparison with others is unnecessary. Lest, however, there should be any question as to its distinctness from "*A. cinnamomea*" of Baird, which is said to have come from Pembina, I have measured the skull of the type (No. 591, male, U. S. National Museum—the skin has been lost), and find it to be as large as that of *austerus* proper. And Baird's measurements of the animal show that it was larger even than average *austerus*. The dental peculiarity pointed out by Baird as one of the distinctive characters of the supposed species, namely, the fact that the angular depressions in the crowns of the back upper molars communicate across the teeth, forming transverse loops instead of lateral triangles, I incline to agree with Coues in considering abnormal.

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ON ARCTIC CHARACTERS OF THE SURFACE  
FAUNA OF THE BAY OF FUNDY, AND THE  
CONNECTION WITH A THEORY OF  
THE DISTRIBUTION OF FLOAT-  
ING MARINE LIFE.

BY J. WALTER FEWKES.

SEVERAL naturalists have shown a similarity between the fauna of the Bay of Fundy and that of the waters of Labrador and Greenland. This comparison is of great interest to students of New England marine zoology.

As the evidence thus far adduced is mainly drawn from studies of littoral animals, it has seemed in place to test the theory by a consideration of oceanic genera. It would be pre-eminently fitting to consider floating marine life with this thought in mind, and as the young of a large number of marine genera are free-swimming,